

## IN THE CLAIMS

The entire pending claim set is provided for the Examiner's convenience. A marked-up version of the claims is provided in Appendix A attached to this document.

Please amend claims 26-46 as follows:

1 26. (Amended) A method of location management in a mobile  
2 telecommunication system comprising mobile stations, at least one core network  
3 providing telecommunication services, and a radio access network providing  
4 connections between the mobile stations and the core network, and in which system  
5 information concerning the location of the mobile station is stored in the radio access  
6 network, comprising  
7 tracking in the radio access network of the location of the mobile station to the  
8 accuracy of a location area,  
9 determining in the core network a reporting area comprising at least one  
10 location area,  
11 informing the radio access network by the core network of the reporting area  
12 determined,  
13 receiving at the radio access network a location update from a mobile station,  
14 determining by the radio access network based on the location update whether  
15 or not the mobile station has moved out of the reporting area, and  
16 sending by the radio access network to the core network a report if the mobile  
17 station has moved out of the reporting area.

1 <sup>2</sup>27. (Amended Twice) The method according to claim <sup>1</sup>26, wherein a  
2 plurality of location accuracy levels is defined, each location accuracy level having  
3 location areas of different sizes, and the radio access network selects one of these  
4 accuracy levels to be used for tracking the mobile station.

1 <sup>3</sup>28. (Amended Twice) The method according to claim <sup>2</sup>27, wherein the  
2 reporting area is a location area of one location accuracy level.

1 <sup>4</sup>29. (Amended twice) The method according to claim <sup>2</sup>27, wherein the  
2 radio access network selects the location accuracy level based on the services  
3 currently used by a subscriber using the mobile station.

1 <sup>5</sup>30. (Amended Twice) The method according to claim <sup>2</sup>27, wherein the radio  
2 access network selects the location accuracy level based on service parameters given  
3 by the core network.

1 <sup>6</sup>31. (Amended Twice) The method according to claim <sup>2</sup>27, wherein the radio  
2 access network selects the location accuracy level based on the past behavior of a  
3 subscriber using the mobile station.

1 <sup>7</sup>32. (Amended Twice) The method according to claim <sup>6</sup>31, wherein the  
2 behavior of the subscriber is determined based on the number of pages that the radio  
3 access network has performed to locate the mobile station and the number of location  
4 updates that the mobile station has performed.

1 <sup>8</sup>  
~~33~~. (Amended Twice) The method according to claim <sup>2</sup>~~27~~, wherein the radio  
2 access network informs the mobile station of the location accuracy level to be used  
3 when tracking the mobile station.

1 <sup>9</sup>  
~~34~~. (Amended twice) The method according to claim <sup>1</sup>~~28~~, wherein the core  
2 network requests that a mobile station reauthenticates itself when the mobile station  
3 moves to a new reporting area.

1 <sup>10</sup>  
~~35~~. (Amended Twice) The method according to claim <sup>1</sup>~~26~~, wherein the  
2 mobile station is entitled to different services in different reporting areas.

B 2  
CONT 1 <sup>11</sup>  
~~36~~. (Amended Twice) The method according to claim <sup>1</sup>~~26~~, wherein the  
2 mobile station is entitled to different qualities of service in different reporting areas.

1 <sup>12</sup>  
~~37~~. (Amended Twice) The method according to claim <sup>1</sup>~~26~~, wherein the core  
2 network and the radio access network negotiate the size of the reporting area to be  
3 used.

1 <sup>13</sup>  
~~38~~. (Amended Twice) The method according to claim <sup>12</sup>~~37~~, wherein the  
2 negotiation takes place when the service is activated.

1 <sup>14</sup>  
~~39~~. (Amended Twice) The method according to claim <sup>12</sup>~~37~~, wherein the  
2 negotiation takes place when the service is in an activated state.

15

1

1        ~~40.~~ (Amended twice)        The method according to claim ~~26~~, wherein  
2        the service parameters for different service areas for the services a subscriber using  
3        the mobile station has subscribed to are specified and stored in the core network,  
4        the mobile station initiates a location update process when entering into a new  
5        reporting area,  
6        in response to having received the location update, the radio access network  
7        forwards the new location information of the mobile station to the core network,  
8        the core network receives the new location information and defines a new  
9        service area for the subscriber, checks the service parameters of services the  
10       subscriber is entitled to in the new service area, and sends the radio access network  
11       information about the new service parameters,  
12       the radio access network receives the information about the new service  
13       parameters and completes the location update process by sending the mobile station  
14       a response.

16

1

1        ~~41.~~ (Amended twice)        The method according to claim ~~26~~, wherein  
2        information about reporting area configuration is stored in the mobile station, and when  
3        entering a new service area, the mobile station initiates a location update process,  
4        instructing the radio access network to forward the new location information to the core  
5        network, and

6        the radio access network forwards the location information to the core network.

17

16

1        ~~42.~~ (Amended Twice)        The method according to claim ~~41~~, wherein the  
2        information about the service area configuration is given as a list of cells.

18

16

1 ~~43~~. (Amended twice) The method according to claim ~~41~~, wherein the  
2 information about the reporting area configuration is given as coordinates of the  
3 reporting area and the mobile station observes its coordinates and initiates a location  
4 update when entering into a new reporting area.

19

1 ~~44~~. (Amended Twice) The radio access network for a mobile  
2 telecommunication system comprising mobile stations, at least one core network  
3 providing telecommunication services, and a radio access network, providing  
4 connections between the mobile stations and the core network, and in which system  
5 information concerning the location of the mobile station is stored in the radio access  
6 network, the radio access network adapted to

B2

cont

7 use a location area configuration to track the location of the mobile station on  
8 the accuracy of one location area,  
9 receive information on a reporting area determined by the core network,  
10 receive a location update from the mobile station,  
11 determine, based on the location update, whether or not the mobile station has  
12 moved out of the reporting area, and  
13 send the core network a report if the mobile station has moved out of the  
14 reporting area.

18

B

1 45. (Amended Twice) The network element for a radio access network of a

2 mobile telecommunication system comprising mobile stations, at least one core  
3 network providing telecommunication services, and a radio access network providing  
4 connections between the mobile stations and the core network, and in which system  
5 information concerning the location of the mobile station is stored in the radio access  
6 network,

7 the network element adapted to

8 use a location area configuration to track the location of the mobile station on

9 the accuracy of one location area,

10 receive information on a reporting area determined by the core network,

11 receive a location update from the mobile station,

12 determine, based on the location update, whether or not the mobile station has  
13 moved out of the reporting area, and

14 send the core network a report if the mobile station has moved out of the  
15 reporting area.

21

~~46.~~

(Amended Twice) The core network for a mobile telecommunication

system comprising mobile stations, at least one core network providing connections

between the mobile stations and the core network, and in which system information

concerning the location of the mobile station is stored in a radio access network, and

the radio access network uses a location area configuration to track the location of the

mobile station on the accuracy of one location area,

the core network adapted to

determine a service area comprising at least one location area,

inform the radio access network of the reporting area determined, and to

receive a report from the radio access network when the mobile station has

moved out of the reporting area.